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The Sharma horizon: sgraffiato wares and other glazed ceramics of the Indian Ocean trade (ca 980-1150).

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Mentioned by al-Muqaddasi in 985 and al-Idrisi in 1150, the medieval port of Sharma was discovered in 1996 at the head of the Ra's Sharma, 50km east of al-Shihr in Hadramawt (Yemen) (Fig. 1). Excavations held there since 2001 show that this site was a very peculiar harbour, a transit entrepôt founded by foreign traders, probably Iranian, at the crossroads of their maritime networks¹.

1 – The site.

1-1 Description and dating.

The port is located at the extremity of a prominent cape, on a small plain at the foot of a rocky plateau with a steep ledge. It benefits from remarkable natural defences and from a good anchoring but water supply is very limited and the place is rather remote, about 12km from the nearest villages across the barren plateau. Situated on the western border of the plain, overlooking the anchorage, the settlement extends over 5ha and was strongly defended with a fortification wall 2.10m thick. A citadel protected the city and five small forts were located on top of the surrounding heights, guarding the approach from the sea as well as from the hinterland.

About 50 buildings have been identified so far in this settlement which may have included a hundred structures (Fig. 2). Most of them present very regular plans, rather typical of storerooms: the smallest ones (35 to 55m²) have two or three contiguous rooms, whereas the largest (105 to 145m² except for some which reach 235m²) are made up of three or four rooms on each side of an axial corridor. No secondary structures were discovered in the trenches between these buildings which seem to have been standing isolated as massive constructions often surrounded by large heaps of rubbish.

Except for some erratic pre-Islamic sherds and a late surface reoccupation in the southern part of the site, the archaeological material is very homogeneous in all levels from the bedrock to the surface, and dated through the study of the Chinese imports to a limited period between about 980, not long before al-Muqaddasi mentions the port, and ca 1150. Small objects and luxury items are extremely rare but in all levels the ceramics are very varied and mainly imported from China, India, the Gulf area, Eastern Africa and Yemen itself.

¹ This project is supported by the CNRS (UMR 8084) and the French Ministry of Foreign Affairs, Paris, as by the General Organisation for Antiquities, Manuscripts and Museums, San'a. Details on the site as known from the 2001-2002 excavations are presented in Rougeulle 2003 and id. on press. All the plans and drawings published here are from V. Bernard.

1-2 The historical context.

The rather peculiar characteristics of the site indicate that Sharma was not a normal medieval harbour city, as was the contemporary nearby port of al-Shihr for example². It was more probably a fortified entrepôt, a transit outpost founded by traders who already had well-established commercial networks. Given the conditions of the Indian Ocean trade at that time, this place was most certainly connected with the networks of the Gulf merchants who dominated the trade routes of the Indian Ocean in the 9-10th centuries.

The destruction of the Iranian emporium of Siraf by an earthquake in 977 followed by the fall of the Buyid dynasty led to the complete reorganisation of the Gulf trade networks in the 11th century and the rise of new economic centres at Qays and Hormuz. It is probable that the foundation of Sharma and its activities are related to this main evolution in medieval trade. As for the sudden abandonment of the port, the study of Chinese imports indicates that it took place around 1150. The presence everywhere on the surface of the site of fragments of kegs, a very rare ceramic shape whose only parallels are found in Egypt (Rougeulle, *on press*: fig. 15: 6-12; Hope 1981: pl. XXVIII down right), may indicate that this dramatic event is related to the arrival of Egyptians on the cape. It is in fact possible that Sharma was destroyed or abandoned owing to an Egyptian attack. This hypothesis fits quite well with the tense situation prevailing at that time between the Gulf and Fatimid traders, as illustrated by the unsuccessful siege of Aden by the Amir of Qays in 1135 (Goiten 1954; Margariti 2002: 263-266).

1-3 Stratigraphical references.

Sharma is therefore a rather atypical site, with a precise and limited time range ca 980-1140/50. It delivered a rich pottery assemblage, counting hundreds of ceramic types and shapes both known and unknown which probably represent mostly the traces of broken cargoes rather than remnants from the daily households of its inhabitants. As several chronological phases were identified in the areas excavated, the detailed stratigraphical study of this assemblage brings interesting information toward the identification and dating of the trade ceramics as well as for the evolution of the patterns of exchanges in the Western Indian Ocean during this period.

Unfortunately, the chronology of Sharma is not as clear as could be expected. The depth of archaeological deposits never exceeds two meters between the surface and the substratum which appears at many places. In addition, strong erosion has destroyed the upper layers and floors which means that sealed levels are not very numerous. Furthermore, the void areas between the structures have often been entirely washed down to the bedrock and it is impossible to fix firmly the stratigraphy of the various buildings excavated to a general phasing of the site. The chronological study of the ceramics therefore relies mostly on some excavated sequences in distinct areas of the site (Fig. 2), mainly :

- the southern fortification area, where four main phases were identified. The first one is represented by the first stage of building 17, without any defensive wall; the second saw the construction of a large straight wall connecting the corner of building 17 to the

² See C. Hardy-Guilbert, *this issue*.

foot of the citadel; during the third, buildings 18 and 34 were erected, partly on the ruins of this fortification; and eventually, at the very end of the occupation of the port, a new defensive line was quickly erected, with sections of wall joining the existing buildings as curtain walls between towers.

- the area of building 119 with four main phases, the first one prior to the construction of the building, the last one being a late reconstruction of the 18th century.
- the area of building 135 located on the edge of the small cliff overlooking the harbour, a very strategic position; this sector of the site was erased recently and only the two lowest phases are preserved, the first one most probably dating to the very beginning of the occupation.
- the area of the three successive mosques.

2 – The ceramic assemblage.

35 515 sherds of pottery were excavated at Sharma. 89.64% are unglazed pieces, about a hundred types imported from all countries bordering the Indian Ocean or produced in local kilns which were discovered recently near the village of Yadhghat, 12km north of Sharma (Rougeulle, on press). 3.75% are Chinese imports, which is considerable when compared with the quantity found on other medieval harbour sites, 0.5 to 0.9% at Siraf for example, 0.3 and 0.15% respectively in contemporary levels at Kush and Shanga³. (3) This corpus is very rich and varied, and about 80 different types of porcelains, stoneware and pottery, produced in ten different kilns and rather precisely dated, have been identified till now by Dr Zhao Bing in charge of this study (Zhao, on press). On the other hand, glazed ceramics represent 6.61% of the assemblage (2346ex.), a proportion lower than at Siraf (average 10%) but slightly higher than that registered on other sites (5.9 to 6.3% in 11th c. levels at Shanga for example, 5.44% in contemporary levels at Kush)⁴. Contrary to the Chinese imports, they are very homogeneous and come mostly from the Gulf area⁵.

2-1 Abbasid wares.

Alkaline blue glaze ware

One of the most famous ceramic productions of the Abbasid period, the alkaline blue glaze ware, and especially the so-called “Sasanian-Islamic” jars, was widely exported and is found on most of the coastal sites of the 8-10th centuries all around the Indian Ocean and even in the Far East as far as China (more than 300 sherds found at Yangzhou) and Japan (Ho 1993: 3-4).

The type belongs to a long tradition of alkaline glazed wares produced since the Sasanian period and even earlier in southern Iraq (Mason & Keall 1991, 57-61). However, although it is one of the main type-fossils of the early Islamic period, the end of its production is not precisely dated. At Siraf for example, this type (SI ware) represents more than 92% (60589

³ Tampoe 1989: fig. 100, 103, 106; Kennet 2004: table 32; Horton 1996: tables 9 and 14, groups 19-29, phases 10-13.

⁴ The proportions given in this paper about Siraf, Kush and Shanga, are calculated from Tampoe, 1989: fig. 100, 103, 106, 108; Kennet 2004: table 3; and Horton, 1996: tables 9 and 14.

⁵ Among these glazed sherds, 6% are associated with the 13/14th c. or 18/19th c. surface reoccupations on the southern part of the site, and 1.5% are unidentified medieval pieces.

sherds) of the assemblage of glazed ceramics found in the area of the Great Mosque, 30-35% in other sectors; it is especially numerous in levels dated to periods 2 and 3, 9-10th c., but seems to continue well into period 4, ca 11-13th c. Only forty-nine pieces were found at Kush (type Turq 5), a site which seems to have been only slightly occupied in the 9-10th c. These pieces are present in all levels from the end of phase II (end of the 8th c., 0.08% of total assemblage of the period) to the abandonment of the site in phase VII (end of the 13th c., 0.28%), and even in the reoccupation level of the 16-17th c. At Shanga, 679 pieces are registered from the main trench Tr6-10, 10.8% of the glazed corpus; according to Horton (1996: 277), the distribution of Sasanian-Islamic indicates that it was already in circulation at the beginning of the occupation (ca 750), peaking in Tr6-10, phase 4 (ca 850), and declining rapidly after phase 8 (ca 950), and that its importation ceased in phase 11 (ca 1000), with the subsequent tail attributed to residuality. But the proportion of blue glazed sherds for the total quantity of ceramics, 1.7% in phase 1, 1.8% in phase 4 and 0.7% in phase 10, still amounts to 0.36% in phase 14 (12th c.).

Alkaline blue glaze pieces are much rarer at Sharma, with no more than 33 small sherds or 0.09% of the total ceramics. Four pieces are from bowls, all others from jars, and some are decorated with an appliqué strip of clay with vertical thin grooves or with small punctuated triangles. The fabric is rather fine, buff or pale yellow, and the glazes are of various tints of blue or blue-green, often quite thick, sometimes decaying, porous and iridescent. A dozen sherds were found on the surface, but most of the others come from deep layers associated with the early occupation: ten in building 135; two in phase I in buildings 34 and 119; one in a thin layer between the bedrock and the floor of phase I of building 2; and several from rather deep levels in different trenches. Given the importance of imported material at Sharma and the strong connections of the entrepôt with the Gulf trade, the scarcity of alkaline blue glaze pieces and the association of most sherds with the earliest levels seem very significant. It is in fact probable that this ware was already nearly out of use at the time the port was founded.

Opaque white glaze ware.

Also a type-fossil of the Abbasid period, opaque white glazed bowls were equally produced at Basra and other centres in Iraq (Mason & Keall 1991: 61). Like the “Sasanian-Islamic” ware, this type was widely exported albeit on a smaller scale and some pieces have been found as far away as Thailand (Ho 1993, table 2).

White glaze ware is much better documented than the blue one, and the periods of introduction of the different classes--plain or decorated in cobalt, lustre, or splashes of glaze--seem now rather precisely dated, from around 800 for the earliest production, with cobalt decoration, to around 900 for the latest, with monochrome lustre (Northedge 1996: 231-235). At Susa, the type is present until the second half of the 9th c. (Kervran 1977: 152-153). At Siraf (type WG) it is well represented in period 3 (9-10th c.), ca 40-50% of the glazed corpus, but also in period 4 (11-13th). At Kush, 114 white glazed pieces were found (Ybtin, Cobalt, Btin and Ysplash classes); they appear in phase IV (9-11th c.) and are present in all levels with many residual pieces found in the late reoccupation layers of phase VIII (late 16th-early 17th c.). At Shanga, Tr 6-10, white glaze ware is much less represented than blue glaze ware, 230 ex.; Horton (1996: 277) dates it from the period 800-1000, noting that it declines rapidly after phase 11 “with a long residual trail”, but the average proportion between 0.22 and 0.89% of the total assemblage per phase, peaking at 1.8 and 1.54% respectively in phases 2 (ca 800) and 6 (ca 900), declines only after phase 12 (middle of the 11th c., 0.3%).

At Sharma, white glaze ware is even rarer than the blue one, counting only 12 sherds (0.03% of the total assemblage), most of them too small to give any idea of the shape or decoration of the bowl. The fabric is fine, buff or pale yellow, and the glaze is rather thick and peels easily from the body. Only one piece, collected on the surface in the vicinity of well 76 outside the city area proper, is decorated with a dots-and-lines motif in olive green lustre (Rougeulle 2003: fig. 8: 23). Three more sherds were found on the surface or in intermediate layers, but all others were discovered in deep levels, sometimes associated with alkaline blue glazed pieces: one is from a layer contemporaneous with the first mosque; two others are associated with the earliest phase of building 2; and five come from phase I levels in buildings 119 and 135. Therefore, at Sharma white glaze ware is firmly associated with the very first period of occupation of the port. Even so it is quite rare and we may thus date the end of its export to the end of the 10th c., with its production probably already finished at that time.

2-2 Sgraffiatos and related wares.

Most of the glazed ceramics found at Sharma are sgraffiatos, pieces with a rather fine red fabric and a decoration incised through a white slip under a lead glaze, monochrome or mottled in various tints of green, yellow and brown. Contrary to early sgraffiatos, with a pale fabric which were produced in the 10th c. in Mesopotamia, red ware was most probably made in Iranian kilns (Stein 1932: 90-91 et pl. IV; Kennet 2004: 34). It is well-represented on all sites in the Eastern Islamic world dated ca 11-13th c., and several varieties are recorded according to the style of the decoration which can be simply incised, incised on a hatched background or champlévé, or according to the glaze, either monochrome or mottled.

Sgraffiatos were found at Sharma in all levels from the bedrock to the surface. Altogether, 2018 pieces were excavated, 5.68% of the total assemblage, 86.02% of the glazed one; 1167 (3.29-49.74%) are unquestionable sgraffiatos, i.e. sherds with a decoration, either incised, hatched or champlévé; the others are potsherds with the same fabric and glaze but without visible decoration, whether too small or degraded to show it, or belonging to pieces without any decoration at all. This corpus is very varied, and similar to the one registered at Shanga, a site where this ware is well-documented. The detailed study of the Sharma sgraffiatos is now in progress but some conclusions may already be presented here as to the chronological range of some specific classes.

Hatched sgraffiatos.

The hatched sgraffiato type is famous for its association with the period of decline of Siraf⁶. Its beginnings were originally dated to around 1025-1050 (Whitehouse 1975: 265-67), but they are now commonly attributed to the early 11th c. At Shanga, after three pieces in phase 10, this category (type a) becomes very common in phases 11-13 (1.5% of the total ceramics)⁷. At Sharma, 474 pieces were identified, 1.33% of the total ceramics, 23.49% of the sgraffiatos (Fig. 3-4). They were found in all levels, some of them in bottom layers: one is associated with the earliest occupation in the southern fortification area, before the

⁶ It must nevertheless be noted that only ca 20 such sherds were registered in the excavation pottery cards studied by M. Tampoe (1989: 40, 357-357 n° 1195-1216).

⁷ The situation seems different at Kush: except for one piece in phase IV (9-11th c., 0.03%), this type appears around 1100 (phase V, 7ex., 0.17%) and becomes more numerous in phases VI-VII (12-13th c., 12ex., 0.41%, and 15ex., 0.60%, respectively) and even VIII (ca 1600, 12ex., 0.17%).

construction of the first wall 100 (Fig. 3:6) and others were found on the floor associated with this wall (Fig. 3:5); many sherds are from phase I in area 119 (Fig. 3:4-6, 4:2-4, 6-7), before the construction of the building, including seven in phase Ia on the bedrock; four are from the earliest phase in building 2; and four others were found in lower levels in building 135 (Fig. 3:8). It seems therefore that this type is earlier than previously stated, its production going back to the end of the 10th century, maybe around 980. Except for some cups, one biconical beaker, two very shallow plates and a few small jars (Fig. 4: 9-13, 8: 19, 21-22), most pieces are large open bowls with a straight, flanged or notched rim, sometimes scalloped (Fig. 3), an assemblage very similar to the one found at Shanga (Horton 1996: 284 and fig. 205-206). The glaze is sometimes mottled, sometimes nearly colourless except for a yellowish or green band on the lip. Nearly all these bowls are decorated inside with a pseudo-calligraphic frieze on the wall and a circle with floral or geometric motives on the base. The design is often rather crude, except for 18 finely potted pieces which are ornamented with floriated pseudo-inscriptions (Fig. 4:1-7); half of them were found in early levels, some on the bedrock, and this special class seems therefore to appear very early and to disappear quickly, maybe in the first half of the 11th century⁸.

Champlevé sgraffiatos.

Characterised by a decoration in reserve made by scratching away parts of the slip, the champlevé sgraffiatos were originally dated to the 12-13th centuries, but this dating is still under debate. At Kush, no piece was found prior to phase VII (13th c.), but they appear at Shanga (type b) during phase 11 (0.16% increasing regularly to peak in phase 16, ca 1250, 0.65%); their introduction seems therefore to go back to the first half of the 11th c. At Sharma 146 such sherds were collected (Fig. 5) making up 0.41% of the total and 7.23% of the sgraffiatos. Most of them come from medium or upper layers but a dozen were found in levels associated with early deposits: five fragments come from phase I in building 119, some of them were found stuck in a floor; five others are associated with early occupation in building 17 (Fig. 5:1,10), in the area of the southern fortification; and another one was found on a plastered floor of building 135 phase I. Unless all these pieces are intrusive, it would seem that the champlevé sgraffiatos are not much later than the hatched type. The corpus is similar to the one found at Shanga (Horton 1996: fig. 207: a-d) and other Indian Ocean port sites. Except for a beaker, found on the bedrock in building 119, all pieces are bowls, 90% decorated with crude radiating lines (Fig. 5: 1-12), certainly some kind of very rough pseudo-calligraphic design, the others with finer floral motives (Fig. 5: 13-17)⁹; the glaze is colourless, except on the lip and base which are often green, sometimes brown. Identical pieces of the two types were found on the coast of Eastern Iran, at Tiz area III, a place identified by A. Stein as a ceramic kiln (1932: 90-91, pl. IV: 186, 188, 196, 274).

Incised and plain sgraffiatos.

Other diagnostic sgraffiatos are simply incised, a category which is difficult to sub-classify given the small size of many sherds. Most pieces are bowls, of varied shapes and sizes, decorated with pseudo-calligraphic motives, more or less crudely incised under a glaze which is either mottled or monochrome, green or honey-brown (Fig. 6-7).

⁸ At Sohar, a similar bowl with floriated design was found in the earliest layer of Level VI (ca 10-12th c.), associated with a white glazed bowl with cobalt decoration and a Sasanian-Islamic jar (Kervran, on press: fig. 29). No such decoration was found in subsequent layers of this phase where hatched sgraffiatos are nevertheless numerous (ibid: fig. 34, 36).

⁹ None of these finer pieces were found in early levels.

Some different classes may be identified. Fifteen pieces are heavy conical bowls with a notched rim and a very simple decoration in a band under a mottled glaze in dark green, honey and brown (Fig. 7: 1-4). Ten other pieces are covered with a monochrome glaze, green or honey, and are characterised by a rather deep conical shape with a straight lip and a very crude decoration, a small scratching in the shape of an M under the lip (Fig. 7: 5-7). And 25 fragments seem to belong to bowls with a simple spiral decoration under a monochrome or mottled glaze (Fig. 7: 8-9). No parallels were found for the two first classes which are present only in upper levels and can probably be dated to a rather late period, maybe in the 12th c. On the contrary, many pieces of the third group were found in deep layers, for example in levels associated with the occupation of the first fortification wall and others prior to the erection of building 34 in the same area.

Although it is sometimes difficult to assess the presence, or not, of decoration on small fragments, it is clear that quite a number of pieces with similar fabric and glaze as sgraffiatos were not decorated. For example, of the 28 sherds belonging to biconical beakers with a mottled glaze, all of them are plain except three pieces, one incised, one hatched and one champlévé (Fig. 7:10-12); the champlévé sherd was found in phase I of building 119, but all others are from the surface or upper layers. More than eighty similar plain and decorated beakers were found at Shanga (types a and d) in phases 11-17 (ca 1000-1300) peaking in phase 14 (12th c) (Horton 1996: fig. 206: j-k, 207h). About 130 fragments, most of them with a monochrome glaze, seem to belong to undecorated cups or bowls (Fig. 8: 1-12). A similar quantity of sherds (5.54-0.37%) are from small jars or jugs of varied shapes, many with a mottled glaze and some of them with an incised or hatched decoration (Fig. 8: 13-23); one typical category is made up of jars, ca 25cm in diameter and 30-35cm in height, with wheel marks visible inside and out, covered with a transparent glaze with patches of honey on an uneven white slip (Fig. 8: 23).

The dating of monochrome sgraffiatos is still under debate. They are often considered as a later evolution of the ware, dating to around the end of the 11th c. onwards, at Lashkari Bazar and Kush for example, but they seem to appear much earlier on other sites¹⁰. At Shanga (types f-k) pieces are present as early as phase 9 (ca 950) and are numerous from phase 11 onwards, peaking in phases 13-14 (end of the 11th-12th c.). At Sharma, the study of this category, which is sometimes difficult to identify with certainty, is not complete but several sherds seem nevertheless associated with early layers; for example, an incised fragment with a speckled honey glaze, seemingly monochrome, was found in a phase I layer in the fortification area while others are from phase I in building 119 (Fig. 7: 8).

2-3 Green-gold-white ware.

Beside the well-known ceramic productions already described, Sharma has also yielded a very peculiar type which does not seem to have been documented so far. These are open bowls, ca 20-25cm in diameter, wheel-made with an everted, sometimes flanged lip, and a marked ring base (Fig. 9: 1-11). The fabric is red, sometimes rather coarse, and always micaceous. Most pieces are covered with a white powdery layer, more or less thick, which seems to represent the decay of a yellow-brown goldy glaze, still preserved here and there in patches. In fact, some sherds show at their best-preserved places that this gold layer itself represents the decay of an original green shiny glaze.

¹⁰ For the discussion about this dating, see Kenner 2004: 36 and 75-76.

Although no parallels were found for this type, its fabric and shapes are strongly reminiscent of the typical Yemeni glazed wares which were produced in the Tihama area from around the 13th c. onwards, and especially of the so-called Mustard Ware. The Canadian excavations at Zabid showed that Yemeni potters did not produce glazed ceramics until quite late but the chronology and typological evolution of the various types recorded at this site in middle and late Islamic contexts is poorly known. Yet, it seems that no glazed piece was found in layers prior to the Islam 4 period (1150-1350) and that this production started only in the course of the 13th century (Ciuk & Keall 1996: 3, pl. 45-47). The best-documented type is Mustard Ware, which was produced at the end of the 13th and in the 14th centuries in the vicinity of Hays on the Tihama or near Aden (Mason & Keall 1988: 456; Horton 1996: 291), and which was the only ceramic production of Yemen widely exported outside its area of origin. Mustard sherds were found at many Yemeni sites as far as Hadhramawt and Mahra¹¹, but also at Qusayr, on the Red Sea coast of Egypt (Whitcomb & Johnson 1982: 137-138, pl. 37), Qalhat in Oman and Minab in Iran (pers. doc), Kush in the U.A.E (Kennet 2004: 41-42) and on many Eastern African port sites as Kilwa, Manda and Shanga where it is dated ca 1250-1350 (Chittick 1974: 304; id. 1984: 81-82, fig. 39; Horton 1996: 291). As in the GGW type, the glaze of Mustard bowls is generally decayed to a yellowish powdery layer, on a medium red micaceous body, and the shapes are often similar (Fig. 9: 12).

61 sherds of GGW ware were identified at Sharma, 0.17% of the total assemblage, 2.60% of the glazed one. About fifty come from upper layers but some were found in medium or rather low levels: two fragments for example were collected in layers which seem associated with the destruction of the first fortification, prior to the construction of building 18 (670/2); three others between two floors in building 17; and two are from rather deep levels in trench 134. It seems therefore that the GGW ware appeared at Sharma some time before the port was abandoned, maybe around the end of the 11th c. Should its Yemeni origin be confirmed, it would represent the oldest glazed ceramic production of Yemen attested to-day, maybe a forerunner of Mustard ware¹². (12)

2-4 Miscellaneous wares.

Slip painted.

Some isolated pieces with a different decorative technique were also discovered at Sharma. A slip-decorated conical bowl with straight lip was found in a phase I level in building 119, (Fig. 10: 3). The red fabric is rather fine and the decoration is made of lines and stains of thick white slip, probably a pseudo-calligraphic inscription on the wall. The shiny transparent glaze is slightly yellowish and the outside is burnished. This bowl has the typical sgraffiato base and may therefore be included in this ware. Two other fragments, with a dots-and-lines decoration in thin white slip, were found in surface layers (Fig. 10: 1-2). Identical pieces were collected by Stein, together with champlévé and incised sgraffiatos, at Tiz III (Stein 1937: pl.

¹¹ Fifty sherds of Mustard Ware were also collected at Sharma, nearly all on the surface layer in building 18; it is clear that the site was briefly reoccupied in the late 13th or 14th century, an occupation limited to this structure which was probably the best-preserved at that time. Probably associated with this reoccupation, ten sherds of turquoise frit-ware have also been found in the surface around this building.

¹² According to Ed Keall, some similar pieces were also found at Zabid (com. pers.). Petrographic analyses will help identify the origin of these sherds.

IV: 242, 333). Nine pieces with a dots-and-lines slip decoration were also found at Shanga (type n), nearly all in phase 11, but the glaze is described as brown or brown-green (Horton 1996: 286).

A sherd from building 135, with a fine orange fabric, is ornamented with a horizontal line of spots ca 1.4cm in diameter, alternately white and black and decorated with small points, black on the white spots and white on the black ones; the black colour seems to be made with glaze, and the white one is slip (Fig. 10: 4). The overall colourless glaze is thin but of a very good quality and very shiny, especially inside. A similar fragment shows white spots seemingly in groups of three, all with one black point, and another is decorated with a large white spot on the base (Fig. 10: 5). This style of slip-painted decoration is typical of the 10-11th c. ceramic production of Central Asia and specially of the Samarcand kilns¹³. (13) Pieces were exported to continental Iran and surrounding regions, but no such sherds seem to have been recovered at Shanga or even at Siraf. A piece with seemingly similar decoration was nevertheless collected at Jamshid near Tiz (Stein 1937: pl. IV: 235).

Black painted.

Ten sherds with a rather fine red fabric and a decoration painted in black on a white slip under a slightly yellowish transparent glaze were found at Sharma. Except one, they all come from buildings 119 and 135, and seem rather early, three of them found on the bedrock. The best preserved pieces show a decoration of spirals, of floriated medallions or of a calligraphic inscription written across the base of the bowl (Fig. 10: 6-9). No clear parallel was found for this ware which is nevertheless strongly reminiscent of the Samarcand production (Samarcand 1992: n°130). Some sherds with a black painted decoration on a white ground under a colourless glaze are mentioned at Siraf (Tampoe 1989: 43) and a piece from Jamshid seems similar (Stein 1937: pl. IV: 28).

3- Conclusions.

The absence of a general phasing at Sharma does not allow a clear statistical approach by chronological periods as in Shanga. But, although still in progress, the stratigraphical study of the ceramics in the various excavated buildings nevertheless brings interesting information on the dating of the glazed wares and their variants. This study also emphasizes the strong parallels between the assemblages in Sharma and Shanga. It must be noted that the importation of glazed wares from the Gulf area was multiplied by two in proportion at Shanga from phases 10 (3.1%) to phase 11 (6.3%), by more than seven in sherd count (79/557 pieces) (Horton 1996: table 9 and fig. 163). This could be related to the foundation of Sharma, a transit harbour strongly connected with the African trade as shown by the presence of about 12.5% of African ceramics in the diagnostic unglazed assemblage at the site (Rougeulle 2004: fig. 13). It is also worth noting here that most of the glazed wares found at Sharma are also present in the corpus collected by Stein at Tiz and nearby Jamshid, two sites which clearly deserve further studies.

¹³ *Terres secretes de Samarcande* 1992: 98-104, see in particular n°169.

References

- Chittick N., 1974: *Kilwa. An Islamic trading city on the East African Coast*. Nairobi: The British Institute in Eastern Africa, memoir 5, 2 vols.
- Chittick N., 1984: *Manda. Excavations at an Island Port on the Kenya coast*. Nairobi.
- Ciuk Cr. & Keall E., 1996: *Zabid project pottery manual 1995. Pre-Islamic and Islamic ceramics for the Zabid area, North Yemen*. Bar International Series 655.
- Goiten S.S., 1954: Two eyewitness reports on an expedition of the king of Kish (Qays) against Aden. *BSOAS* 16/2 : 247-257.
- Ho Ch., 1993: The significance of West Asian ceramics in East and Southeast Asia in the 9th-10th century. Tokyo: Japanese Society for the Study of Trade Ceramics
- Hope C.A., 1981: Dakhleh oasis project. Report on the study of the pottery and kilns, third season – 1980. *JSSEA* 11/4: 233-241.
- Horton M., 1996: *Shanga. The archaeology of a Muslim trading community on the coast of East Africa*. London: The British Institute in Eastern Africa.
- Kennet D., 2004: *Sasanian and Islamic pottery from Ras al-Khaimah. Classification, chronology and analysis of trade in the Western Indian Ocean*. BAR International Series 1248.
- Kervran M., 1977: Les niveaux islamiques du secteur oriental du Tépé de l'Apadana II. Le matériel céramique. *Cahiers de la D.A.F.I.* 7 : 75-161.
- Kervran M., on press : Archaeological Research at Suhâr 1980-1986. *Journal of Oman Studies*.
- Margariti R.E. 2002 : *Like the place of congregation on judgment day: maritime trade and urban organization in medieval Aden* (ca. 1083-1229). Princeton University: unpublished Ph. D. thesis.
- Mason R.B. & Keall E.J., 1988: Provenance of local ceramic industry and the characterization of imports: petrography of pottery from medieval Yemen. *Antiquity* 62: 452-463.
- Mason R.B. & Keall E.J., 1991: The 'Abbâsid glazed wares of Sîrâf and the Basra connection: petrographic analysis. *Iran*, 29 : 51-66.
- Northedge A., 1996: Friedrich Sarre's 'Die Keramik von Samarra' in perspective. In K. Bartl & S. Hauser eds, *Continuity and Change in Northern Mesopotamia from the Hellenistic to the Early Islamic Period*. *BBVO* 17: 229-258.
- Rougeulle A., 2001: Notes on pre- and early Islamic harbours of Hadhramawt (Yemen). *Proceedings of the Seminar for Arabian Studies* 31: 203-214.
- Rougeulle A., 2003: Excavations at Sharmah, Hadramawt: the 2001 and 2002 seasons. *Proceedings of the Seminar for Arabian Studies* 33: 287-307.
- Rougeulle A., on press: Le Yémen entre Orient et Afrique : Sharma, un entrepôt du commerce médiéval sur la côte sud de l'Arabie. *Annales Islamologiques* 38.
- Soustiel J., 1985: *La céramique islamique*. Paris : Office du Livre, Editions Vilo, Le Guide du Connaisseur.
- Stein A., 1937 : *Archaeological reconnaissance in north-western India and south-eastern Iran*. London.
- Tampoe M., 1989: *Maritime trade between China and the West. An archaeological study of the ceramics from Siraf (Persian Gulf), 8th to 15th centuries A.D.* Bar International Series 555. *Terres secrètes de Samarcande. Céramiques du VIII^e au XIII^e siècle*. Institut du Monde Arabe, Paris; Musée de Normandie, Caen; Musée des Augustins, Toulouse.
- Whitcomb D., 1988: A Fatimid residence at Aqaba, Jordan. *Annual of the department of Antiquities of Jordan*

- Whitcomb D. & Johnson J.H., 1979: *Qusayr al-Qadim 1978. Preliminary Report*. American Research Center in Egypt. Cairo
- Whitcomb D. & Johnson J.H., 1982: *Qusayr al-Qadim 1980. Preliminary Report*. Malibu: Udena Publications.
- Whitehouse D., 1971: Excavations at Sîrâf: Fourth Interim Report. *Iran* 9: 1-18.
- Whitehouse D., 1975: The decline of Sîrâf, In F. Bagherzadeh (ed.), *Proceedings of the Third Annual Symposium on Archaeological Research in Iran*: 265-267. Teheran.
- Zhao B., on press: L'importation de la céramique chinoise à Sharma (Hadramaout) au Yémen. *Annales Islamologiques* 38.



Fig. 1: Sharma and the Western Indian Ocean.

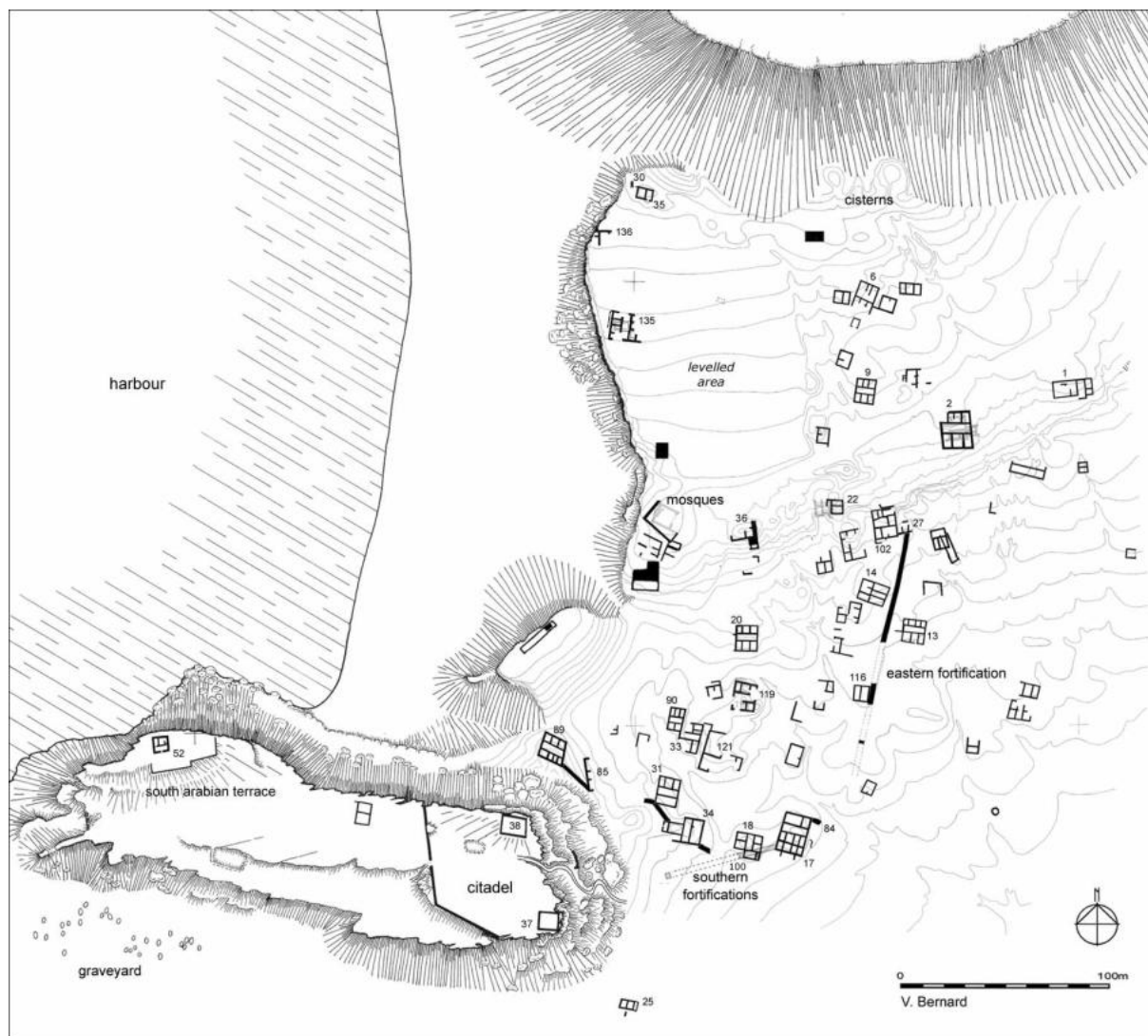


Fig. 2: Map of the medieval entrepôt.

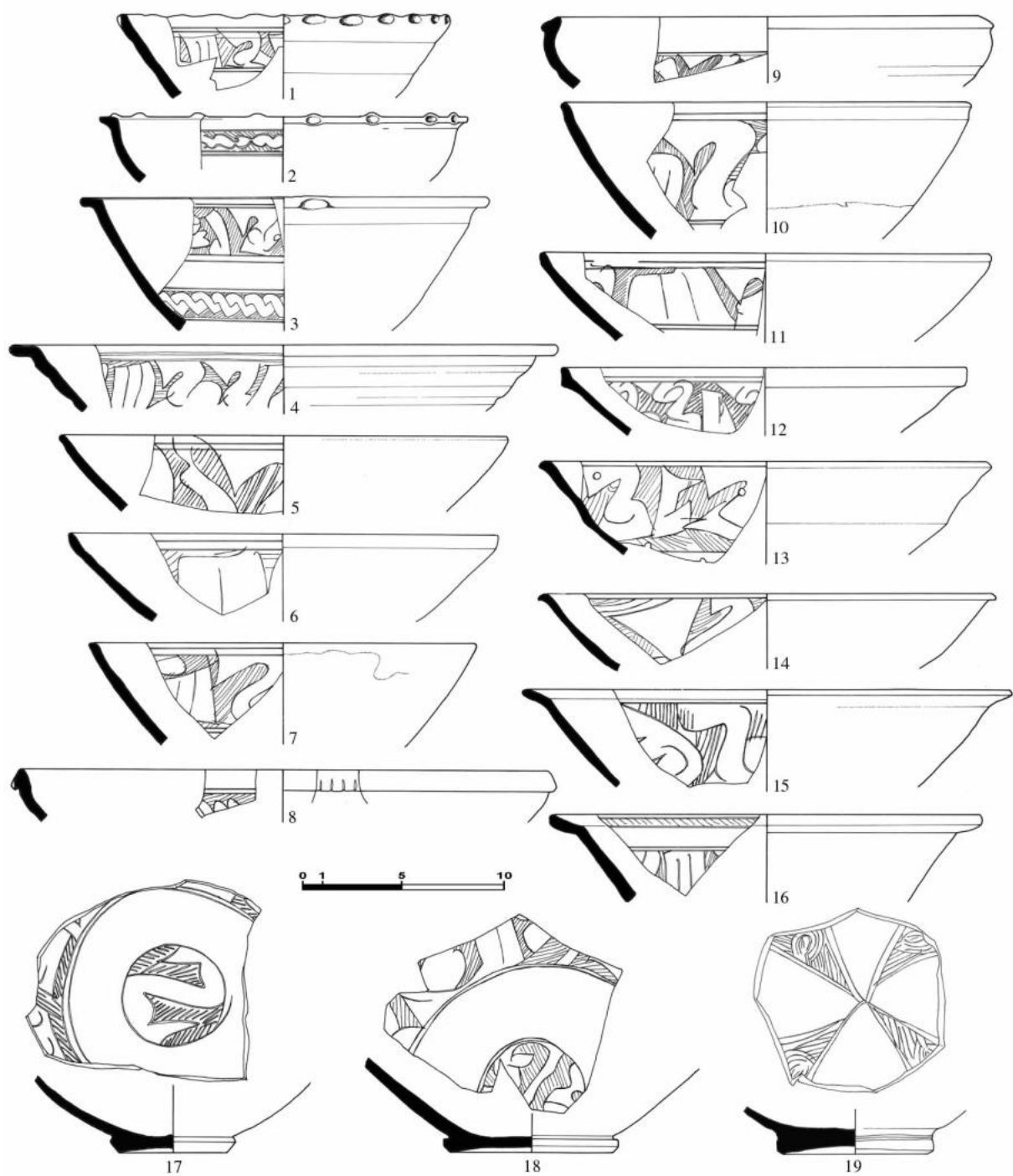


Fig. 3: Hatched sgraffiatos, bowls with mottled (1-8, 17-19) or rather colourless (9-11) glaze.

- 1: 579/1. Small bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze with patches of light green and brown.
- 2: 812/1. Small bowl or cup. Fine dark red fabric; white slip; geometric hatched decoration; glaze mottled in green, yellow and honey.
- 3: 1237/1. Bowl. Fine red fabric; white slip; fine pseudo-calligraphic and geometric hatched decoration; colourless glaze with patches in green and dark brown.
- 4: 1265/1. Large bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; glaze mottled in pale green and honey.
- 5: 1030/1. Bowl. Fine dark red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze with patches of honey.
- 6: 774/1. Bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze with patches in green and brown.
- 7: 676/1. Bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze with one patch of dark green.
- 8: 1136/1. Large bowl or dish. Fine red fabric; white slip; hatched decoration; glaze mottled in green and honey.
- 9: 1288/1. Bowl or dish. Fine red fabric, white slip; pseudo-calligraphic hatched decoration; slightly greenish transparent glaze.
- 10: 1020/2. Bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze, olive-green band on the lip.
- 11: 1029/1; Bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze, olive-green band on the lip.
- 12: 795/2. Bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; slightly yellowish transparent glaze.
- 13: 983/1. Bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; slightly greenish transparent glaze. Two mending holes.
- 14: 1054/1; Bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze.
- 15: 882/1. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze.
- 16: 795/3; Fine red fabric; white slip; pseudo-calligraphic hatched decoration; slightly greenish transparent glaze.
- 17: 597/1. Base of a bowl. Fine red fabric; white slip; pseudo-calligraphic and geometric hatched decoration; colourless glaze with patches of brown and olive-green.
- 18: 1132/1. Base of a bowl. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze with patches of brown and light green.
- 19: 601/1. Base of a bowl. Fine red fabric; white slip; geometric hatched decoration; glaze mottled in pale honey and green, with small dark green points.

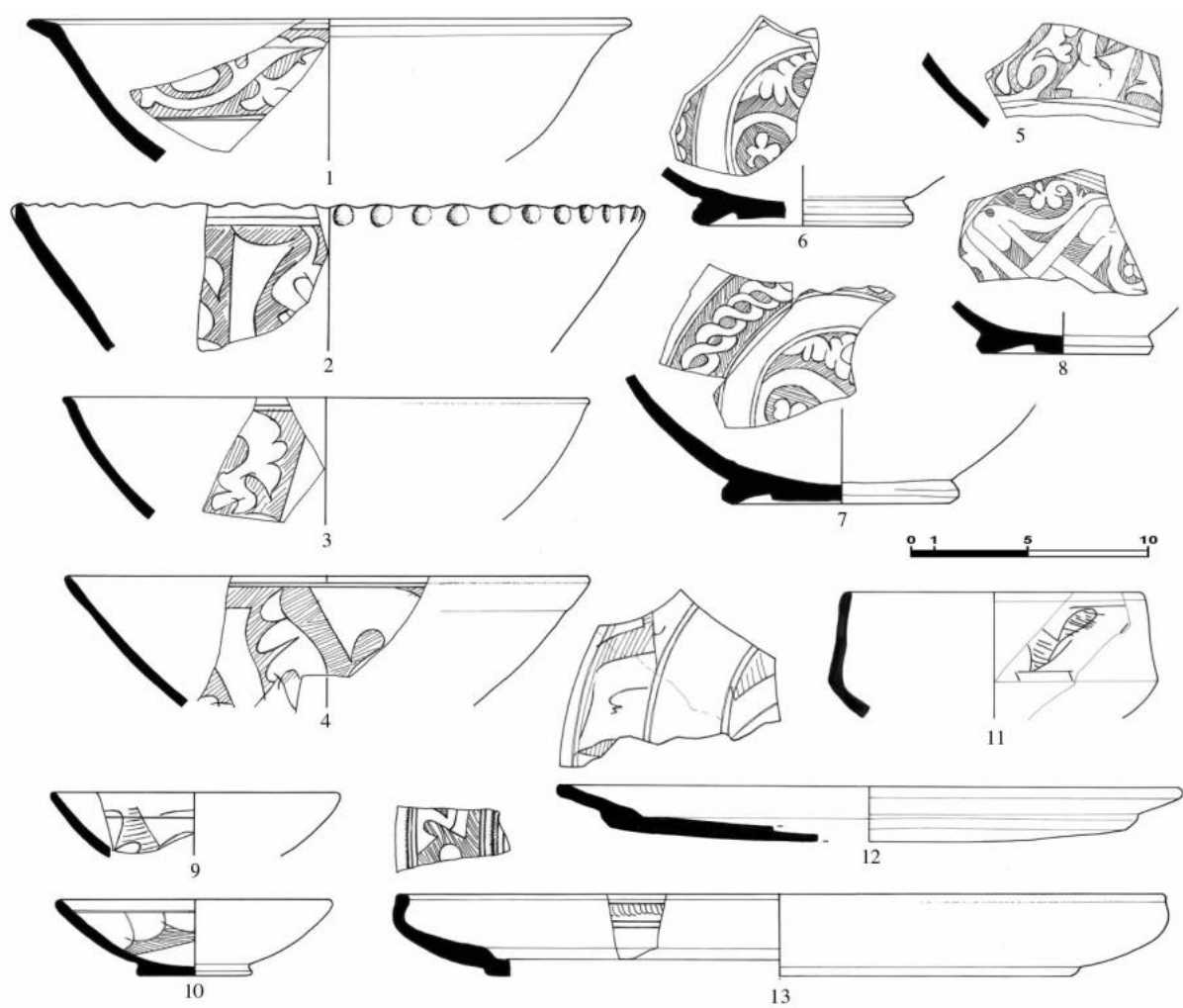


Fig. 4: Hatched sgraffiatos, bowls with fine floriated decoration (1-8) and miscellaneous shapes (9-16).

- 1: 632/1. Bowl. Fine red fabric; traces of white slip; floriated floral (?) hatched decoration; traces of yellowish glaze.
- 2: 1289/1. Bowl. Fine red fabric; white slip; floriated pseudo-calligraphic hatched decoration; colourless glaze with patches of light green and honey.
- 3: 1025/2; Bowl. Fine red fabric; white slip; floriated pseudo-calligraphic (?) hatched decoration; colourless glaze with patches of light green and honey;
- 4: 1128/3. Bowl. Fine red fabric; white slip; floriated pseudo-calligraphic hatched decoration; degraded colourless glaze with a light brown patch.
- 5: 1253/1. Wall of a bowl. Fine red fabric; white slip; floriated pseudo-calligraphic hatched decoration; degraded glaze, seemingly green and honey.
- 6: 897/1. Base of a bowl. Fine red fabric; white slip; floriated floral hatched decoration; colourless glaze with patches of green and brown.
- 7: 1024/1 & 1128/2. Base and wall of a bowl. Fine red fabric; white slip; floriated floral and geometric hatched decoration; colourless glaze with patches of green and brown.
- 8: 1110/1. Base of a bowl. Fine red fabric; white slip; floriated geometric hatched decoration; degraded colourless glaze with a dark green patch.
- 9: 1126/1. Cup. Fine red fabric; white slip; geometric hatched decoration; colourless glaze with patches of light green and honey.
- 10: 842/1. Cup. Fine red fabric; white slip; geometric hatched decoration; glaze mottled in light green, yellow and honey.
- 11: S447. Beaker. Fine red-orange fabric; white slip; pseudo-calligraphic (?) hatched decoration; degraded glaze mottled in yellow and green.
- 12: 679/2. Dish. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; glaze mottled in green, honey and brown.
- 13: 977/1. Dish. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; colourless glaze.

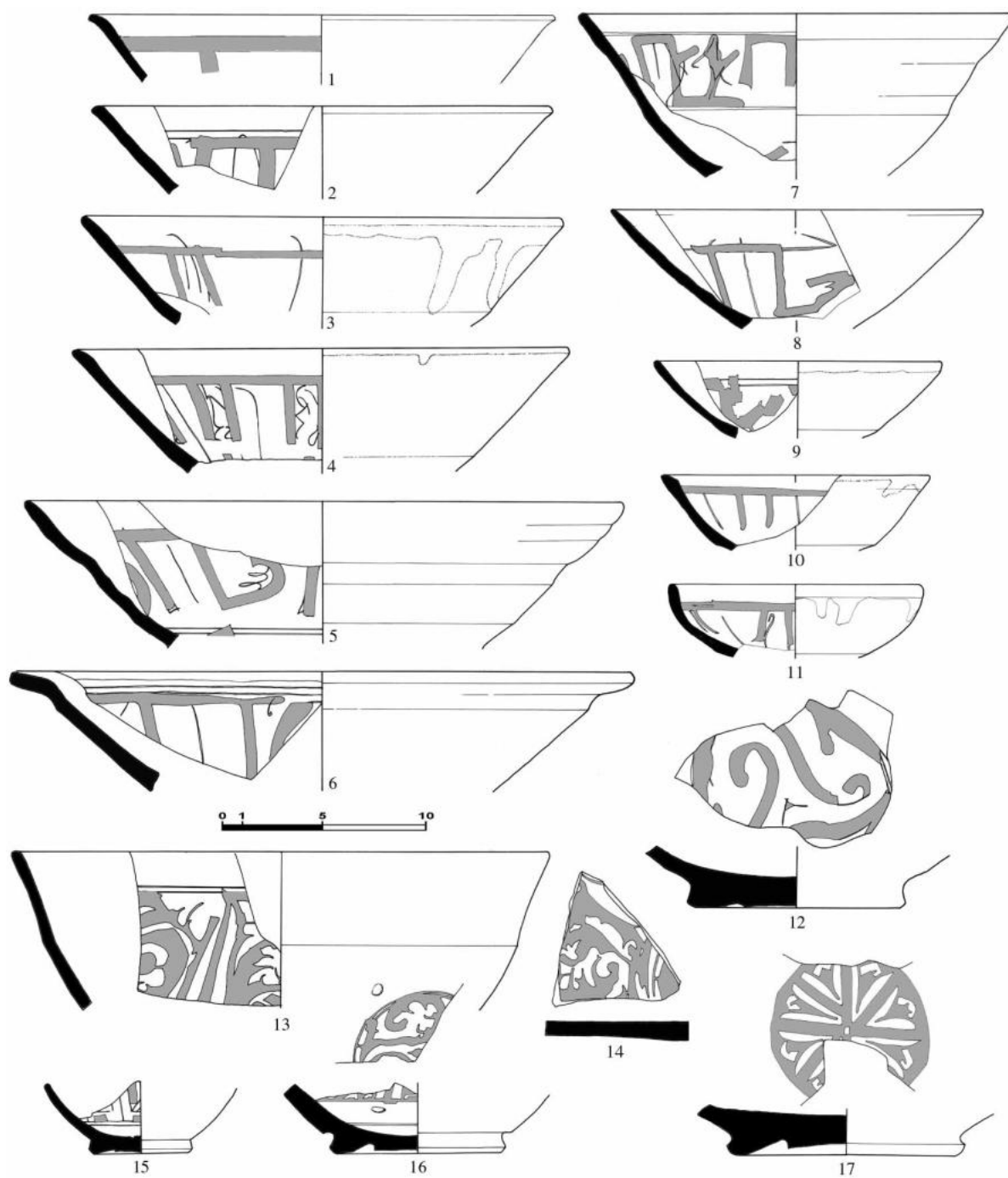


Fig. 5: Champlevés sgraffiatos, bowls with rough pseudo-calligraphic design (1-12) or with fine decoration (13-17).

- 1: 497/1. Bowl. Fine red fabric; white slip; rough pseudo-calligraphic champlevé decoration; yellowish transparent glaze, greenish on the lip.
- 2: 870/1. Bowl. Fine red fabric; white slip; rough pseudo-calligraphic champlevé decoration; yellow transparent glaze, green on the lip.
- 3: 958/1. Bowl. Fine red fabric; white slip; very rough pseudo-calligraphic champlevé decoration; colourless glaze, light brown on the lip.
- 4: 1235/1. Bowl. Fine red fabric; white slip; rather fine pseudo-calligraphic champlevé decoration; colourless glaze.
- 5: 1147/1. Large bowl with visible wheel marks. Fine red-orange fabric; very thin white slip, nearly absent by places; rough pseudo-calligraphic champlevé decoration appearing on a mottled dark red and white ground; colourless glaze.
- 6: 593/1. Large bowl. Fine red fabric; thin white slip; rough pseudo-calligraphic champlevé decoration; yellowish transparent glaze, green on the lip.
- 7: 538/5. Large bowl. Fine red fabric; white slip; very rough pseudo-calligraphic champlevé decoration; transparent glaze mottled in green and yellowish.
- 8: 782bis/1. Bowl. Fine red fabric; thick white slip; rough pseudo-calligraphic champlevé decoration; yellowish transparent glaze.
- 9: 898/1. Small bowl. Fine red fabric; white slip; very rough pseudo-calligraphic champlevé decoration; degrade glaze, yellow and green.
- 10: 644/2. Small bowl. Fine red fabric; white slip; rough pseudo-calligraphic champlevé decoration; colourless shiny glaze, olive-green on the lip.
- 11: 655/1. Small bowl. Fine red fabric; white slip; rough pseudo-calligraphic champlevé decoration; yellowish transparent glaze, green on the lip.
- 12: 933/1. Base of a large bowl. Fine red fabric; thin white slip; rough spiral champlevé decoration; yellowish transparent glaze.
- 13: 802/2 & 816/1. Large bowl. Fine red fabric; thick white slip; fine floral champlevé decoration; yellowish transparent glaze on the wall, dark brown on the lip.
- 14: 1218/1. Straight base of a large bowl or dish. Fine red fabric; thick white slip; fine floral champlevé decoration; colourless glaze.
- 15: 813/2. Base of a small bowl. Fine red-orange fabric; white slip; fine pseudo-calligraphic champlevé decoration; colourless glaze.
- 16: 744/1. Base of a bowl. Fine red fabric; thick white slip; fine floral champlevé decoration; yellowish transparent glaze on the base, green on the walls.
- 17: 844/1 & 866/1. Base of a large bowl. Fine red fabric; thick white slip; fine floral champlevé decoration; yellowish transparent glaze on the base, green on the walls.

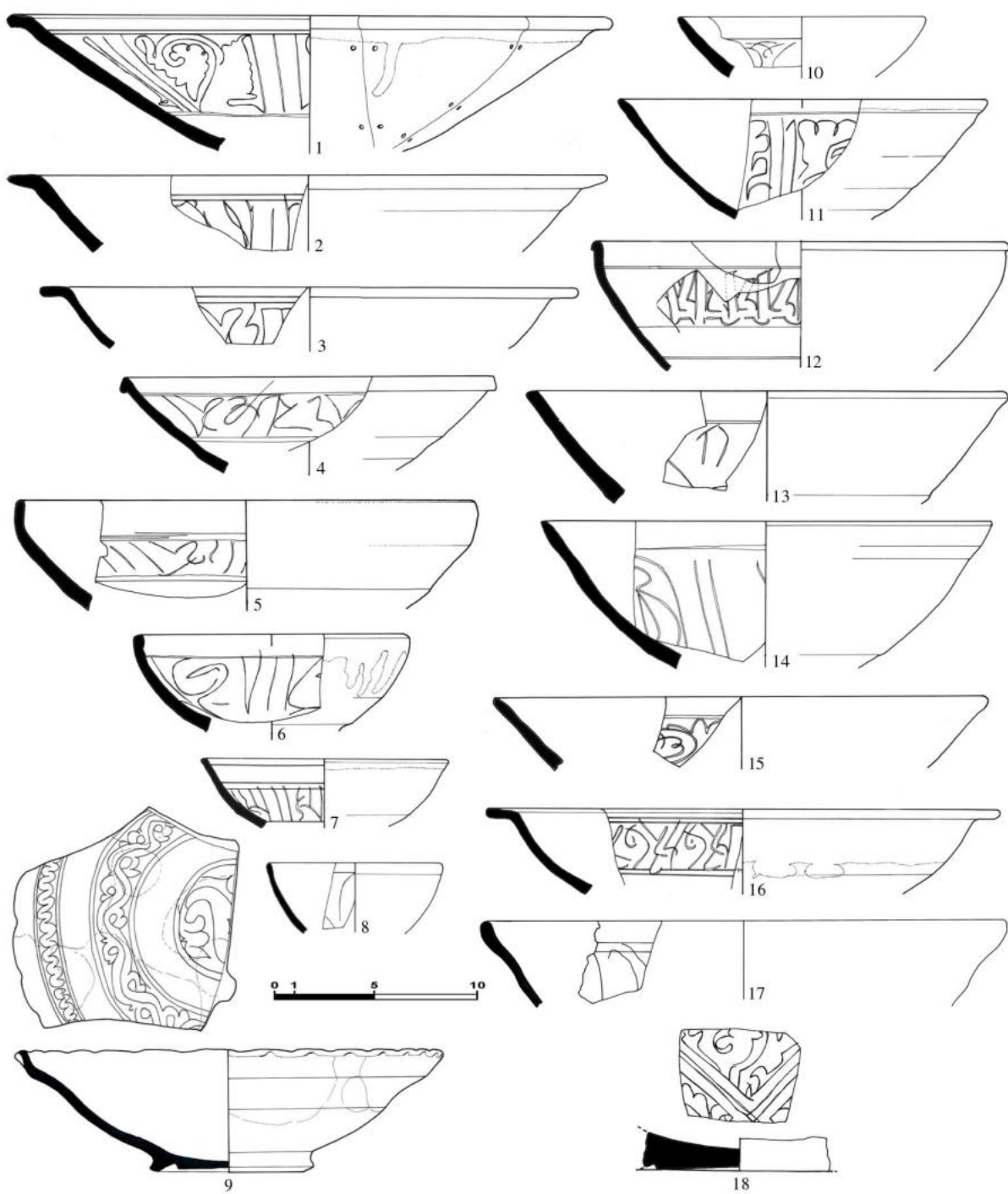


Fig. 6: Incised sgraffiatos, bowls with incised decoration under a mottled (1-9) or monochrome (10-18) glaze.

- 1: 569/2. Large bowl. Fine red fabric; white slip, degraded; pseudo-calligraphic incised decoration ; traces of glaze, green and honey (?). Several mending holes.
- 2: 822/3. large bowl. Fine red fabric; white slip; pseudo-calligraphic incised decoration; mottled (?) green glaze.
- 3: 559/2. Large bowl. Fine red fabric; white slip; pseudo-calligraphic incised decoration; mottled (?) honey glaze.
- 4: 783/1. Bowl. Fine red fabric; white slip; pseudo-calligraphic incised decoration; colourless glaze with patches of brown and honey.
- 5: 739/1. Bowl. Fine dark red fabric; white slip; pseudo-calligraphic incised decoration; glaze mottled in dark green, honey and brown.
- 6: 884/1. Bowl. Fine red fabric; white slip; pseudo-calligraphic incised decoration; glaze mottled in dark and light green.
- 7: 813/1. Small bowl. Fine red fabric; white slip; pseudo-calligraphic incised decoration; dark brown glaze on the base, honey glaze with dark speckles on the lip.
- 8: 690/2. Small bowl. Fine red fabric; white slip; pseudo-calligraphic incised decoration; colourless glaze with green patches, specially on the lip.
- 9: 669/1. Bowl. Fine red fabric; white slip; geometric incised decoration; colourless glaze with patches of dark green, honey and brown.
- 10: 553/4. Small bowl. Fine red fabric; white slip; incised decoration; monochrome brown glaze.
- 11: 844/1. Bowl. Fine dark red fabric; white slip; pseudo-calligraphic incised decoration; monochrome light green glaze with dark speckles, degraded.
- 12: 529/1. Bowl. Fine red fabric; white slip; pseudo-calligraphic incised decoration; yellowish transparent glaze.
- 13: 735/2. Bowl. Fine red fabric; white slip; incised decoration; monochrome green glaze except on the lip which is white.
- 14: 866/2. Bowl. Fine red fabric; white slip; incised decoration; monochrome green glaze, darker on the lip.
- 15: 520/3. Bowl. Fine red fabric; white slip; incised decoration; monochrome green glaze, darker on the lip.
- 16: 834/2. Bowl. Fine red fabric; white slip; pseudo-calligraphic incised decoration; monochrome dark honey glaze.
- 17: S61. Bol. Fine red fabric; white slip; incised decoration; monochrome dark brown glaze.
- 18: 1179/1. Fine red fabric; white slip; incised decoration; monochrome green glaze.

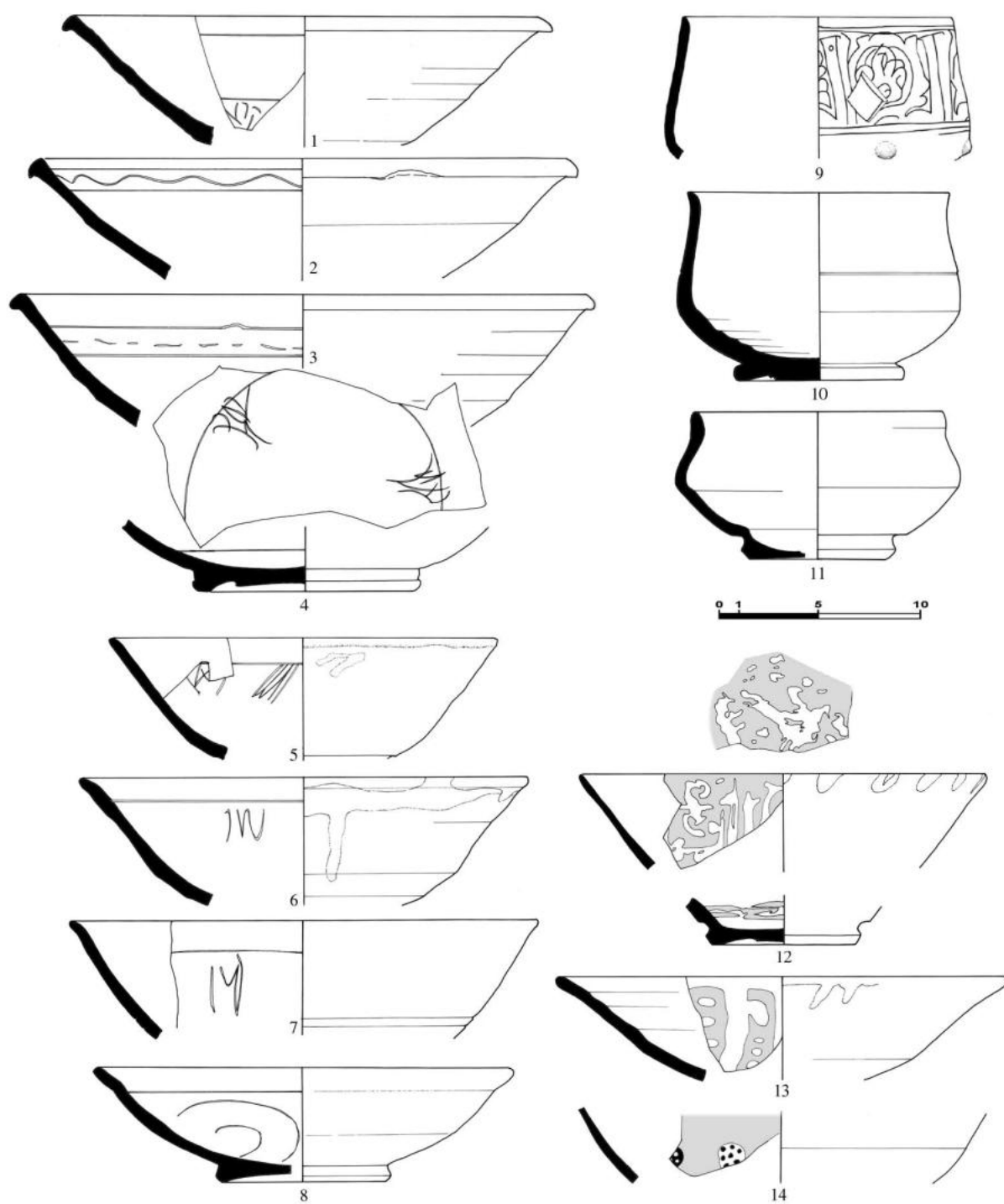


Fig. 7: Incised s graffiatos, bowls with rough incised decoration (1-8); beakers (9-11); slip painted bowls (12-14).

- 1: 888/1bis. Bowl. Fine red fabric; white slip; rough incised decoration in a band on the bottom of the walls; glaze mottled in light green, dark green and brown.
- 2: 764/2. Bowl. Fine red fabric; white slip; rough incised decoration, wavy line in a band under the lip; degraded glaze mottled in green, honey and brown.
- 3: 743/1. Bowl. Fine red fabric; white slip; rough incised decoration, pecked line in a band on the wall; glaze mottled in green, honey and dark brown.
- 4: 538/2. Base of a bowl. Fine red fabric; white slip; rough incised decoration; glaze mottled in dark green, honey and brown.
- 5: 504/1. Bowl. Fine red fabric; white slip; rough incised scribbled decoration under the lip; monochrome green glaze.
- 6: 1048/1. Bowl. Fine red fabric; white slip; rough incised scribbled decoration under the lip; monochrome green glaze.
- 7: 957/1. Bowl. Fine red fabric; white slip; rough incised scribbled decoration under the lip; monochrome honey glaze with dark speckles.
- 8: 1064/1. Bowl. Fine red fabric; white slip; spiral incised decoration; degraded green (?) glaze.
- 9: 662/1. Beaker. Fine dark red fabric; white slip; pseudo-calligraphic incised decoration; inside glaze mottled in brown and honey, outside glaze mottled in dark and light green with hemispherical drops at the largest diameter.
- 10: 748/1. Beaker. Medium red fabric; degraded white slip; traces of glaze, brown and green.
- 11: 549/1. Beaker. Fine red fabric; white slip; degraded glaze mottled in green and honey.
- 12: 1056/2 & 1175/1. Bowl. Fine dark red fabric; pseudo-calligraphic (?) white slip decoration; inside and outside yellowish transparent glaze.
- 13: 904/1. Bowl. Fine red fabric; dots-and-lines white slip decoration; yellowish transparent glaze. Two mending holes.
- 14: 1063/1. Wall of a bowl. Fine pinkish red fabric; slip decoration: one white spot with black points and one black spot with white points; inside and outside colourless glaze, decayed outside.

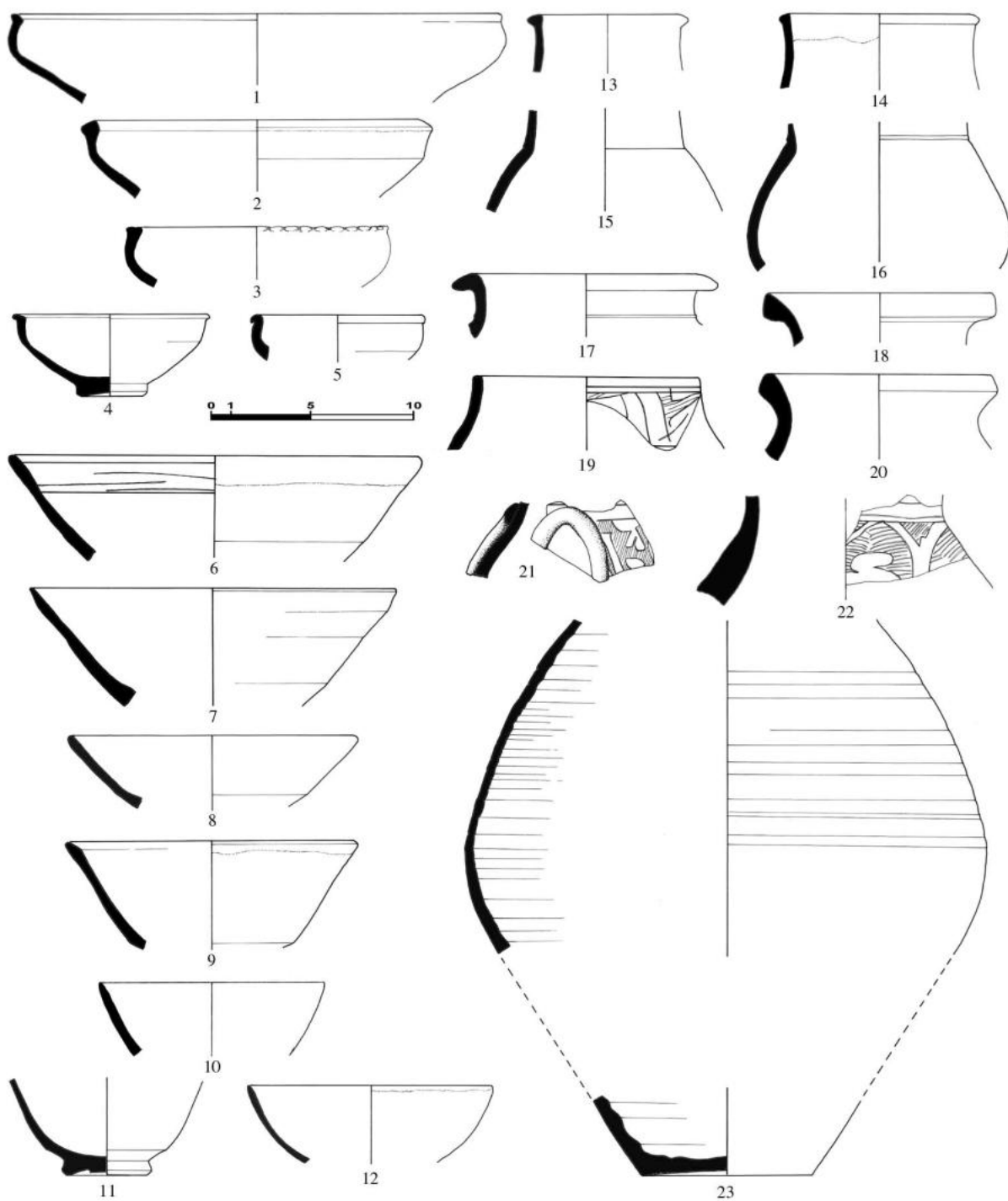


Fig. 8: Undecorated glazed cups and bowls (1-12), glazed jugs and jars (13-23).

- 1: 600/1. Cup. Fine red fabric; white slip; colourless glaze, brown on the lip.
- 2: 1255/1. Cup. Fine red fabric; white slip; colourless glaze with honey patches.
- 3: S182. Cup. Fine red fabric; degraded white slip; traces of green glaze.
- 4: 1067/1. Small cup, burnt (lamp?). Fine dark red fabric; white slip; greyish transparent glaze with dark green patches.
- 5: 677/3. Small cup. Fine red fabric; white slip; colourless glaze with green patches.
- 6: 548/1. Bowl. Fine red fabric; traces of with slip; green glaze, darker when no slip.
- 7: 859/1. Bowl. Rather fine red-orange fabric; white slip; green glaze with dark speckles.
- 8: 809/3. Bowl. Very fine orange fabric; white slip; colourless glaze with green patches.
- 9: 901/2. Bowl. Fine red fabric; white slip; degraded glaze mottled in light and dark honey with dark speckles, brown band on the lip.
- 10: 644/3. Small bowl. Fine dark red fabric; thin white slip; green glaze, darker when no slip.
- 11: 865/2. Base of a small bowl. Fine red fabric; white slip; green glaze with dark speckles.
- 12: 824/1. Small bowl with thin walls. Very fine red fabric; white slip; brown and honey marble glaze, thin and glossy.
- 13: 680/1. Neck of a jug. Fine red-orange fabric; white slip; degraded glaze mottled in honey and green.
- 14: 839/2. Neck of a jug. Fine red fabric; white slip; yellowish transparent glaze with a green patch.
- 15: 827/2. Jug. Fine red-pinkish fabric; white slip; glossy dark brown glaze.
- 16: 1171/1. Jug. Fine red fabric; white slip; glaze mottled in green and honey.
- 17: 888/4. Neck of a small jar. Very fine light brown fabric; white slip; traces of a yellowish glaze.
- 18: 563/8. Neck of a small jar. Fine red fabric; degraded white slip; trace of green glaze.
- 19: 1282/1. Neck of a small jar. Fine red fabric; white slip; pseudo-calligraphic hatched decoration; dark brown glaze. Five mending holes.
- 20: 727/1. Neck of a small jar. Fine red fabric; white slip; traces of green glaze.
- 21: 1125/1. Wall of a small jar. Fine red fabric; white slip; hatched decoration; colourless glaze with a green patch.
- 22: 507/1. Shoulder of a small jar. Fine red fabric; white slip; hatched decoration; glaze mottled in green and honey.
- 23: 669/3. Small jar. Medium red fabric; thin white slip by patches; colourless glaze with honey patches.

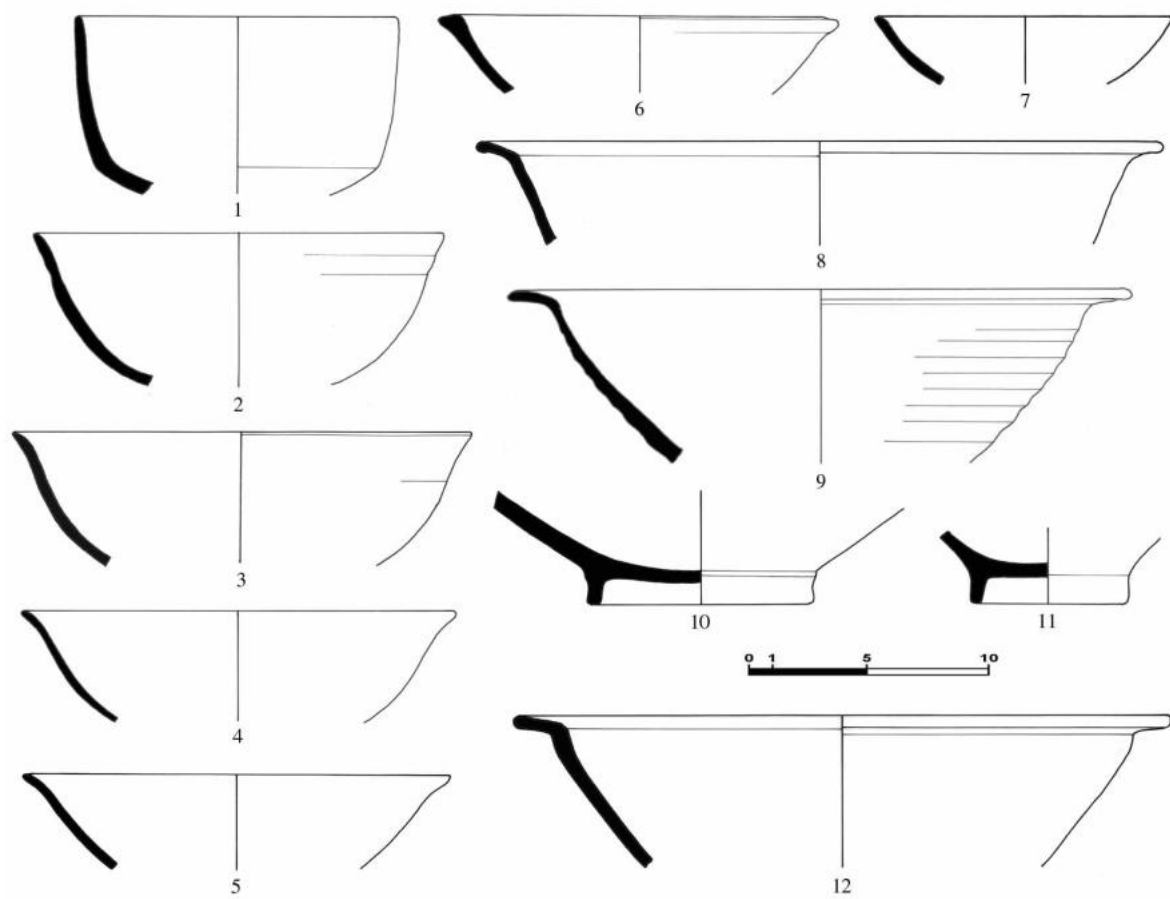


Fig. 9: Green-gold-white bowls (1-12), and a later Mustard parallel (13).

- 1: 822/4. Bowl. Medium red-purple micaceous fabric; inside and outside glaze: thick chalky-white degraded layer with yellow-gold stains, specially near the base.
- 2: 647/9. Bowl. Rather coarse red-purple micaceous fabric; inside and outside glaze: thick powdery white layer, flaking near the lip, with yellow-gold stains.
- 3: 844/4. Bowl. Medium red fabric; inside and outside glaze: thin powdery layer.
- 4: 647/8. Bowl. Medium red micaceous fabric; inside and outside glaze: thick powdery white layer, flaking, with yellow stains and traces of glossy-green glaze.
- 5: 619/1. Bowl. Rather fine micaceous fabric; inside glaze: white layer, traces of green.
- 6: 753/1. Small bowl. Rather fine micaceous fabric; glaze: white layer with yellow-brown stains.
- 7: 653/1. Small bowl. Medium dark micaceous red fabric; inside and outside glaze: thick powdery layer, flaking, with yellow stains.
- 8: 594/3. Large bowl. Rather fine red fabric; inside and outside glaze: thin white layer, with traces of green.
- 9: 844/3. Large bowl. Rather fine red fabric, highly micaceous; inside glaze: very thin yellowish powdery degraded layer with large stains of yellow-gold and a green patch of shiny glaze on the lip.
- 10: 706/2. Base of a bowl. Medium red micaceous fabric; inside and outside glaze: chalky-white degraded layer with yellow-brown stains.
- 11: 670/2. Base of a bowl. Medium dark red fabric, highly micaceous; inside and outside glaze: thick chalky white layer with yellow-gold stains and a large patch of green glaze in the middle of the base.
- 12: 705/1. Large bowl. Medium dark red fabric, highly micaceous; inside glaze: thin powdery bright yellow layer.